DOCKET: CU-4061

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

APPLICANT: Peter ROHRIG)
)
TITLE: CLIP FOR A DUMMY STRAP)
)
COMPLETION OF PCT/AT2003/000265 filed September 9, 2003)

ENGLISH TRANSLATION OF PCT INTERNATIONAL APPLICATION

Clip for a Pacifier Strap

The invention relates to a pacifier strap clip with two clamping parts pivotable relative to each other and having co-operating clamping regions, wherein opposing, inner-side surfaces of the clamping regions rest against each other in a closed clamping position of the pacifier strap clip.

Clamps, or clips, respectively, for fastening pacifier straps or the like to pieces of clothing of an infant, or to other objects, respectively, such as a baby buggy element, are already known, cf. AT model No. 11639, and also available on the market. The known pacifier strap clips essentially consist of a U-section made of a relatively hard synthetic material which consequently leaves impressions on the infant's clothing to which the clip had been fastened. Moreover, due to its relatively hard material with a smooth surface, such a clip can be fastened to hard objects, e.g. a baby buggy element, with an only unsatisfactory hold.

Another pacifier strap clip is known from US 5,948,003 A; there, the clamping parts are held in their closed position by means of a leg spring. At the

same time, this clip can be used as a cover or protection element for the pacifier nipple. This clip, too, consists of a relatively hard synthetic material, thereby causing impressions on pieces of clothing and not enabling fastening to hard objects with a satisfactory hold on them.

From DE 26 18 880 C2 a different type of clip is known, comprising two parts which are pivotable towards each other, in which the two clamping regions are made of a soft material, e.g. rubber, yet which has an opening mechanism for the clip that has a complex construction and is not handy and in which opening, or closing, respectively, of the clip is achieved by shifting a slide that is provided with a taper.

Also in DE 23 64 839 B2, a different type of clip is shown, which comprises two clamping plates each having a clamping jaw at their ends, the clamping jaws consisting of an elastic pad with a tooth profile. Yet, also in this clip, two separate clamping plates are provided, and to the first clamping plate a pivotable carrier is integrally molded, the lower side of which is designed as a pivot pin.

From DE 35 10 906 A1, a clip for suspenders is

known in which a leaf spring substantially designed as a U-section carries two clamping jaws made of a non-skid, comparatively soft rubber material. In this case, however, the leaf-spring has a bias so that the suspender clip is provided in a non-loaded position in its closed position and must be transferred into an open position by means of a cam.

The present invention has as its object to provide a pacifier strap clip of simple construction, which does not leave any impressions on pieces of clothing on which the clip is fastened, and which, moreover, ensures an improved hold on smooth or thin materials. Furthermore, the pacifier strap clip shall also be fastenable with satisfactory hold on hard objects, such as an element of a baby buggy, and as simple a handling as possible of the pacifier strap clip shall be ensured when being applied.

In the clip of the initially defined type, this is achieved in that the surface of at least one clamping region at least partially consists of a material having a lower hardness than the material of the clamping parts, in that the clamping parts are formed by the legs of a U-section, the apex of which is provided as a

pivot axis, or pivoting region, respectively, for the clamping parts, and in that the clamping regions of the pacifier strap clip are spaced apart in their relaxed open position. By providing at least one surface with a comparatively soft material, the clamping region having the surface of the softer material will yield when the clip is being fastened to a piece of clothing so that impressions on the pieces of clothing can be avoided. Moreover, the material of lower hardness has a higher coefficient of friction, resulting in an improved frictional engagement, i.e. a non-positive engagement, so that the clip will also reliably stay on smooth and thin materials. Furthermore, due to its improved frictional engagement, the clip can also be reliably fastened to hard objects, e.g. to the side wall of a baby buggy or the like, without the clip being pulled off the object to which it is fastened by the pacifier's own weight. Moreover, since the clamping parts are designed as the legs of a U-section, whereby the clamping regions are spaced apart in a relaxed open position of the U-section, the pacifier strap clip is particularly simple to handle during its application.

To achieve the improved fastening, as described

above, it suffices if merely one clamping region at least over parts thereof has a surface of the material of lower hardness.

A simple and inexpensive production of a clamping region with a comparatively soft surface can be achieved if at least one clamping region at least partially is formed by a coating of a material of lower hardness.

In order to ensure the improved frictional engagement between the clamping regions of the clip in as large a region as possible, it is advantageous if the inner surface of the one clamping part is entirely coated in the clamping region by the material of lower hardness.

For reasons of production technology, in particular for ensuring a reliable connection between the clamping part which is made of a material of higher hardness, and the coating, which is made of the material of lower hardness, it is suitable if also a narrow-side rim of the clamping part in the clamping region is at least partially coated with the material of lower hardness.

In order to achieve a certain positive fastening

in addition to the frictional-engagement connection between the two clamping parts in the closed clamping position when fastening them to pieces of clothing and to thereby reduce the probability of the clip unintentionally slipping off the object to which it has been fastened, it is suitable if on each one of the inner surfaces of the clamping regions a tooth profile is provided, the tooth profiles meshing in the clamping position, and at least one tooth profile being made of the material of lower hardness.

If for the transition into the clamped position, a bracket embracing the two clamping parts and shiftably mounted on them is provided, the clamp can be closed in a simple and user-friendly manner by shifting the bracket towards the freely cantilevering ends of the clamping parts. Particularly for a reliably clamping fit of the clip it is suitable if at least one clamping part externally includes at least one wedge-shaped web that widens towards the free end of the clamping part, which web is made of the same material as the U-section, whereby due to the wedge-shape of the web, fastening of the clip to objects of different thicknesses can be ensured.

If two wedge-shaped webs arranged at the rim side are provided on one clamping part,a stable slide bearing of the bracket in the manner of a rail will result from the two wedge-shaped webs.

To prevent an undesired slipping back of the bracket from the wedge-shaped webs, it is suitable if the wedge-shaped web(s) has (have) a profiled surface.

In practice, it has been shown that a reliable clamping engagement on the most varying objects can be achieved if the clamping regions are oval.

If the clamping parts are made of a hard synthetic material, e.g. polycarbonate, the clamping parts will have sufficient strength so that an undesired yielding of the clamping parts and thus, a detachment of the clip can be prevented. In order to obtain the desired friction between the two clamping parts while simultaneously achieving a certain yielding capacity of a clamping region, it is advantageous if a thermoplastic elastomer (TPE) is provided as the material of lower hardness. If the clip is a two-component injection-molded piece, the surface of at least one clamping region can be provided with a material of lower hardness in a simple and inexpensive manner.

The invention will be explained in more detail hereinafter by way of a preferred exemplary embodiment illustrated in the drawing to which, however, it shall not be restricted. In detail,

Fig. 1 shows a perspective view of a clip with a clamping region which has a surface of a softer material;

Fig. 2 shows a further perspective view of the clip according to Fig. 1; and

Fig. 3 shows a section according to line III-III of Fig. 1 and Fig. 2, respectively.

In Figs. 1 and 2, a clamp or clip 1 comprising two clamping parts 2, 2' is shown, each having a clamping region 3, 3'. The two clamping parts 2, 2' are shown in their relaxed open position, in which the two clamping regions 3, 3' are arranged in spaced-apart relationship. By means of a bracket or a sleeve 4 which in Fig. 1 is shown in its rearwardly shifted open position, the two clamping regions 3, 3' can be approximated to each other and thus a clamping fastening of the clip 1 to various objects, e.g. pieces of clothes, the side wall or the cover of a baby buggy or the like, can be achieved. In order to achieve an approximation of the

two clamping regions during a forward shifting of the bracket 4, the one clamping part 2 has two webs 5 which widen in wedge-shaped manner, which have a profile or toothing on their surface 5' that is engaged with the bracket 4 so that an undesired slipping back into the position illustrated in Fig. 1 is avoided.

In the clamping regions 3, 3', the facing surfaces 6, 6' each have a toothed profile 7, 7', whereby a slightly positive connection and thus, an improved hold of the clip 1 is obtained when a thin piece of clothing is being clamped.

The clip 1 substantially consists of a U-section 8 (cf. also Fig. 3), wherein an apex 8' of the U-section 8 forms a pivoting region for the two clamping parts 2, 2'. In the apex 8', moreover, a fastening bracket 9 is provided, i.e. molded in one piece therewith, via which a pacifier strap 10 is connected to the clip 1.

Particularly in Fig. 3 it can be seen that a coating 11 of a softer material is provided in a clamping region 3', which material has a hardness lower than that of the U-section 8 molded in one piece. The coating 11 which, e.g., consists of a thermoplastic elastomer (TPE), has a hardness lower than that of the

material of the U-section 8 which is, e.g., made of a polycarbonate, so that the coating 11 has a certain yielding capacity in the clamping position, whereby undesired impressions of the tooth profiles 7, 7', e.g. on a piece of clothing, can be avoided.

In the exemplary embodiment shown in Fig. 3, the coating 11 also embraces a narrow-side rim 12 of the clamping part 2' in the clamping region 3', thereby ensuring a reliable positive connection of the different materials of the coating 11 and the clamping part 2'. However, the soft material of the coating 11 not only has the advantage that undesired impressions on pieces of clothing can be avoided, it also enables a reliable fastening of the clip 1 on the most varying smooth and hard materials, in particular on different parts of a baby buggy or of a baby chair, since the coating 11 adheres well to such materials, whereby an unintentional detachment of the clip 1 can be prevented.

In addition, it can be seen in Fig. 3 that the U-section 8 comprises braking hooks 13 on its inner side, following the apex 8', which braking hooks prevent an unintentional slipping off of the bracket 4 from the U-

section 8.

In the exemplary embodiment illustrated in the Figures, the clamping regions 3, 3' have an oval shape seen in top view, yet the clamping regions 3, 3' may, of course, also have a different design than illustrated, e.g. they may be rectangular or semi-circular.

Of course, also both clamping parts 2, 2' may have a soft coating 11, and particularly in this instance, the tooth profiles 7, 7' may be omitted, since due to the increased frictional value of the coatings 11, the clip 1 will reliably adhere to the object to which it is fastened.